

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-5 and 7-10 are pending in the present application. Claims 4 and 5 are amended, Claim 6 is cancelled and Claims 7-10 are added by the present response. Support for additions to the claims can be found, at least, on page 29. Thus, no new matter is added.

In the outstanding Office Action, Figures 1 and 2 were objected as including informalities; the drawings were objected to as including reference characters not mentioned in the description; Claims 4-6 were rejected under 35 U.S.C. §101 as directed to non-statutory subject matter; Claims 1, 4, 5 and 6 were rejected under 35 U.S.C. §102(e) as anticipated by Kimura et al. (U.S. Pat. No. 6,798,542, herein "Kimura"); and Claims 2 and 3 were objected to as depending on a rejected based claim but would be allowable in independent form.

Initially, Applicants gratefully acknowledge the indication of the allowable subject matter in Claims 2 and 3. However, since Applicants consider that Claim 1 patentably defines over the cited art, Claims 2 and 3 depending respectively therefrom have presently been maintained in dependent form.

With respect to the objection to Figures 1 and 2 as including informalities, Applicants respectfully submit that Figures 1 and 2 have been amended to include the label "Background Art." Accordingly, Applicants respectfully request that the objection to Figures 1 and 2, be withdrawn.

With respect to the objection to the drawings as including reference characters not mentioned in the description, Applicants respectfully traverse this objection. Specifically, Applicants note that Figures 5A, 5B, 5C, 5D, 6A, 6B, 6C, 6D, 7A, 7B, 8A, 8B, 9A, 9B, 10A, 10B, 11A, 11B, 12A and 12B are in fact mentioned throughout the disclosure. Nevertheless,

Applicants have amended the Brief Description of the Drawings to include these reference characters. Accordingly, Applicants respectfully request that the objection to the drawings as including reference characters not mentioned in the description be withdrawn.

With respect to the rejection of Claims 4-6 under 35 U.S.C. §101, as directed to non-statutory subject matter, Applicants respectfully submit that Claim 6 has been cancelled and Claims 4 and 5 have been amended to overcome the rejection. Specifically, Claims 4 and 5 have been amended to recite the practical application of storing the image including the pixels with converted pixel values on a computer readable medium. Accordingly, Applicants respectfully request the rejection of Claims 4-6 under 35 U.S.C. §101, be withdrawn.

Addressing now the rejection of Claims 1, 4, 5 and 6 under 35 U.S.C. §102 as anticipated by Kimura, Applicants respectfully traverse this rejection.

Claim 1 recites, in part,

edge-extracting means for extracting edges of an input image composed of pixels in a matrix;  
period-detecting means for detecting the periods of the edges;  
dividing means for dividing the input image into blocks according to the periods of the edges; and  
pixel-value converting means for converting the pixel values of all pixels in each of the blocks to a predetermined pixel value.

Kimura describes an image encoding apparatus that is capable of integrally dealing with gray-scale image information and binary image information. Specifically, Kimura describes that it is possible to create a better image by providing a pixel value as well as position information. For example, in Figure 4 of Kimura, when dealing with a 800dpi pixel (a 200dpi pixel split into 4 parts), a pixel value of 64 with a position value of “lower right” provides a specific indication of which one of the 4 parts of the 200dpi pixel is filled in and which is left blank. In addition, in embodiment 7 described in col. 15, it is also possible to add an angle value. By adding an angle value along with a position value it is possible to

describe the case where the filled in part is neither parallel nor orthogonal to the scanning line direction of the image. For example, see Figure 19 where the darkened box is slanted.

In contrast, the claimed invention describes an edge-extracting means for extracting edges of an input image composed of pixels in a matrix and a period-detecting means for detecting the periods of the edges.

The outstanding Action states on page 7 that col. 5 lines 66-67 and Figure 31A of Kimura describes the edge extracting means recited in Claim 1, Applicants respectfully traverse this assertion. Specifically, col. 5 lines 66-67 Kimura describes a function that describes the way a human perceives a boundary of an object. Kimura does not actually describe or suggest performing this process, instead this portion of Kimura merely states that the way a human perceives a boundary should be considered when designing a process for encoding an image. In other words, Kimura does not describe or suggest an edge-extracting means for extracting edges of an input image composed of pixels in a matrix. This feature is simply not described or suggested in Kimura.

In addition, the outstanding Action states on page 7 that col. 15, line 56 to col. 16, line 3 and position determining unit 110 of Kimura describes the period-detecting means recited in Claim 1. Applicants traverse this assertion.

Kimura states in col. 15 that “a boundary position of the overlapped image forming position is calculated at the image forming position determining unit 110.” However, the “boundary position” described in Kimura is not equivalent to the “edges” recited in Claim 1 for which the period-detecting means detects the periods. Instead the “boundary position” described in this portion of Kimura is clearly the “position value” of the filled-in part of the pixel as is described above with regard to Kimura. For instance, as is illustrated in Figure 19, the “boundary position” is the position value such as lower right edge. For instance, Table 1

of col. 15-16 shows several different “boundary position” values such as lower edge, lower right edge, upper edge, etc.

In addition, there is no description or suggestion in Kimura of **detecting the periods of the edges**. Clearly Claim 1 describes that the periods of the edges are detected and this information is used to divide the image. In other words, the period (i.e. interval) of the occurrence of the edges is detected. For instance, in a non-limiting example illustrated in Figure 14, the period of the white edge pixels is detected and using these values the image is divided (e.g. Figure 17). This feature is simply not described or suggested in Kimura.

Therefore, in light of the above discussion, Applicants respectfully submit that Kimura does not describe or suggest all of the features recited in Claim 1. Accordingly, Applicants respectfully submit that Claim 1, and claims depending therefrom, patentably distinguish over Kimura for at least the above noted reasons.

In addition, as noted above, support for Claims 7-10 is found, at least, on page 29 of the originally filed disclosure. Further, Applicants respectfully submit that new Claim 7 recites

an edge-extracting unit configured to extract edges of an input image composed of pixels in a matrix;  
a period-detecting unit configured to detect the periods of the edges;  
a dividing unit configured to divide the input image into blocks according to the periods of the edges; and  
a pixel-value converting unit configured to convert the pixel values of all pixels in each of the blocks to a predetermined pixel value.

As noted above, Kimura does not teach or suggest any element that detects periods of edges. Thus, Kimura does not teach or suggest “a period-detecting unit” as is recited in new Claim 7. Accordingly, Applicants respectfully submit that Claim 7 patentably distinguishes over Kimura. Further, Claims 8-10 depending therefrom are also allowable, at least, in light of their dependence from Claim 7.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

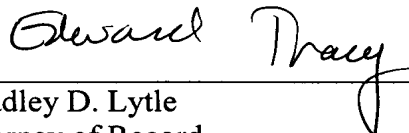
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A handwritten signature in cursive script, appearing to read "Bradley D. Lytle", is written over a horizontal line.

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